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UNITED STATES DISTRICT COURT

DISTRICT OF OREGON

PENDLETON DIVISION

OREGON FIREARMS FEDERATION, INC.,  
et al.,

Plaintiffs,

v.

TINA KOTEK, et al.,

Defendants,

and

Case No. 2:22-cv-01815-IM (lead case)  
3:22-cv-01859-IM (trailing case)  
3:22-cv-01862-IM (trailing case)  
3:22-cv-01869-IM (trailing case)

**DECLARATION OF BRIAN DELAY**

OREGON ALLIANCE FOR GUN SAFETY,	
	Intervenor-Defendant.
MARK FITZ, et al.,	
	Plaintiffs,
	v.
ELLEN F. ROSENBLUM, et al.,	
	Defendants.
KATERINA B. EYRE, et al.,	
	Plaintiffs,
	v.
ELLEN F. ROSENBLUM, et al.,	
	Defendants,
	and
OREGON ALLIANCE FOR GUN SAFETY,	
	Intervenor-Defendant.
DANIEL AZZOPARDI, et al.,	
	Plaintiffs,
	v.
ELLEN F. ROSENBLUM, et al.,	
	Defendants.

I, Brian DeLay, declare and state as follows:

1. I am over the age of eighteen (18) years, competent to testify to the matters contained in this declaration, and testify based on my personal knowledge and information.
2. I am an Associate Professor of History and the Preston Hotchkis Chair in the History of the United States at the University of California, Berkeley.

3. I have been retained by defendants in the above-captioned case to render expert opinions in this case. I have reviewed plaintiffs' complaint, and I make this declaration on the basis of my training, professional expertise, and research. For my work in this case, I am being compensated at a rate of \$250 per hour.

### **BACKGROUND AND QUALIFICATIONS**

4. I received my B.A. from the University of Colorado, Boulder (1994), and my M.A. (1998) and Ph.D. (2004) from Harvard University. My first book, *War of a Thousand Deserts: Indian Raids and the U.S.-Mexican War* (Yale University Press, 2008), won best book prizes from several scholarly organizations. Since 2010, I have been working on three interrelated projects about the historic arms trade: a monograph about the arms trade in the era of American Revolutions (under contract with W.W. Norton and scheduled to be published in 2025); a second monograph about guns, freedom, and domination in the Americas from 1800-1945 (also under contract with W.W. Norton); and a database tracking the global trade in arms and ammunition between the end of the Napoleonic Wars and start of World War I. These projects are grounded in primary-source research in archives in the United States, England, Spain, and Mexico.

5. I have delivered around three dozen presentations on firearms history at universities in the U.S. and abroad, including Harvard University, the University of Chicago, Stanford University, Oxford University, Cambridge University, the University of Melbourne, Doshisha University in Kyoto, Japan, and the Zentrum für Interdisziplinäre Forschung (ZIF), in Bielefeld, Germany. My research on the history of firearms has been supported by grants from the American Philosophical Society, the British Academy, the American Council of Learned Societies, and the Stanford Humanities Center, among other organizations. In 2019, I was awarded a Guggenheim fellowship.

6. In addition to my work as an expert witness on this case, I've served as an expert witness for *Hanson v. District of Columbia* and *Arnold v. Kate Brown et. al.*, both cases challenging limits on high-capacity magazines. A true and correct copy of my curriculum vitae is attached as **Exhibit A** to this declaration.

## **PURPOSE AND SUMMARY**

7. I have been asked to provide my understanding of the history and regulation of high-capacity firearms in the United States, with an emphasis on the years surrounding 1791 and 1868. For the purposes of this declaration, I use “high-capacity firearms” to mean hand-held arms with a capacity greater than ten rounds. Below I make three basic points. First, high-capacity firearms were merely experimental and, consequently, vanishingly rare in the United States in 1791. Second, while reliable firearms with fixed high-capacity magazines first came on the market in the 1860s, they still accounted for less than 0.002% of guns in the U.S. in 1868. Third, firearms with removable high-capacity magazines began coming under state and federal regulation soon after they first became commercially available throughout the United States in the 1920s and 1930s.

### **I. High-capacity firearms were flawed, experimental curiosities in 1791.**

8. Technically, firearms capable of rapidly firing multiple rounds predate the United States. Inventive gunsmiths had been trying to design reliable, effective firearms capable of shooting multiple rounds without reloading since at least the sixteenth century. Evidence for their efforts can be found in personal and public archives, in patent records, and, very occasionally, in actual weapons still preserved in museums and private collections today. But such weapons were flawed, experimental curiosities prior to the founding of the United States. Most of these weapons never advanced beyond proof of concept. Only a small minority of large-capacity firearm inventions ever moved past the design or prototype stage, and none achieved commercial significance or military relevance prior to 1791. This centuries-long history of inventive failure has a context, one that ought to be borne in mind when evaluating claims about the historic regulation of firearms—or lack thereof.

#### **A. The elusive quest for reliable high-capacity firearms prior to the 19th century**

9. Europeans began engaging with gunpowder and its potential military applications in the thirteenth century. By then, European states had long been in competition with one another for military and economic advantage. As the design and efficacy of artillery, bombs, and

handheld firearms improved, and as these improvements forced leaders to reconsider venerable military traditions, states began spending more and more on their militaries. Intensifying competition between sovereigns created powerful incentives for craftspeople and inventors to improve on existing military technology.<sup>1</sup>

10. Sovereign competition fueled innovation. Three of the most important innovations in the seventeenth and eighteenth centuries were: (a) gradual improvements in gunpowder corning, a process that made powder burn more evenly and enabled producers to better modulate its power; (b) the substitution of the cumbersome matchlock ignition system for the more reliable flintlock system in the late seventeenth century; and (c) the development of the socket bayonet (also in the late seventeenth century), which, for the first time, enabled infantry to act both as musketeers and pikemen. All three breakthroughs had significant consequences for the development and use of firearms around the world. Still, most improvements to firearms technology were incremental during the Renaissance and early modern era. Meaningful breakthroughs were very rare.

11. Repeat fire was probably the most coveted but elusive of the gun-making world's aspirations. Safe and reliable increased rate of fire would have been an invaluable force multiplier for militaries before the nineteenth century. States would have paid handsomely to acquire such a comparative advantage, and that prospect incentivized centuries of experimentation. Four basic solutions had come into view as early as the sixteenth century. Each attracted generations of talented gunsmiths, and each had distinct virtues and limitations. The first solution achieved repeat fire with a revolving breech; one innovative design along these lines emerged in Germany in the early sixteenth century. The second approach employed multiple barrels. A seventeenth-century Scot built a gun with a single, fixed breech and fifty barrels arrayed around an axis, for instance. A third design incorporated an internal magazine housing enough powder and (sometimes) balls for multiple shots. Most such arms employed a

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<sup>1</sup> Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West, 1500-1800*, 2nd ed. (Cambridge University Press, 1996).

rotating breechblock to cycle a single powder charge and (sometimes) a single ball into the chamber, before sealing the chamber for firing.<sup>2</sup>

12. The fourth approach, the so-called superposed load or stacked charge method, functioned like a roman candle. In the most effective version, lead balls would be drilled through, like beads. Their central canal would be filled with powder or another, slower-burning compound. A regular gunpowder load would then be packed into the barrel of the gun, followed by one of the pierced rounds, then more gunpowder, then another pierced round, and so on, the loader being exceedingly careful to perfectly align the canals of the individual rounds. Upon firing, the first round (the one closest to the muzzle, would ignite the material inside the bore of the second round, which, a fraction of a second later, would communicate flame to the second powder charge (behind the second pierced ball), and so on, until all shots had left the gun.<sup>3</sup>

13. Master gunsmiths made exquisite varieties of repeating arms from the sixteenth through the eighteenth centuries, at high cost. Designs with rotating breeches or multiple barrels seldom exceeded a ten-round capacity, but early magazine or superposed firearms could. Regardless of type, gunmakers often decorated multi-fire weapons lavishly, and sold or gifted them to a tiny stratum of elite consumers across Europe. But most of these weapons remained gorgeous curiosities, usually more suited to admire than to shoot. Prized more than used, early repeating firearms survive at far, far higher rates than do the era's ordinary, single-shot firearms that did actual work in the world. While produced in very small quantities annually, therefore, they accumulated over the centuries of production so that today the world's museums and collectors possess many intriguing specimens.

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<sup>2</sup> M. L Brown, *Firearms in Colonial America: The Impact on History and Technology, 1492-1792* (Washington: Smithsonian Institution Press, 1980), 50 (Germany), 100 (Scotland). Of early magazine repeaters, a respected authority says “as all were basically impractical and many quite hazardous to use they were produced in extremely limited quantities and hence all are considered great collector’s prizes.” Norm Flayderman, *Flayderman’s Guide to Antique American Firearms and Their Values*, Ninth edition (Iola, WI: Gun Digest Books, 2007), 691.

<sup>3</sup> For discussion of some particularly ingenious superposed load designs, see M. L Brown, *Firearms in Colonial America: The Impact on History and Technology, 1492-1792* (Washington: Smithsonian Institution Press, 1980), 104–6.

14. Notwithstanding often brilliant work, no large-capacity firearm design functioned well enough to become militarily and commercially significant before the nineteenth century. These ideas were simply too far ahead of their times. W. W. Greener, one of the English-speaking world's preeminent authorities on firearms history, put it this way: "The advantages of the repeating principle thus appear to have been observed at an early date, and the inventive genius of the gun-maker would have been equal to producing weapons of the desired type if only the skill and tools of the workman had allowed of a perfect mechanically fitting joint being obtained."<sup>4</sup> Most rotating breech mechanisms were complex and exceedingly difficult to make well before moving parts could be built with machine precision. Long-guns festooned with several barrels were too heavy and cumbersome to be practical handheld weapons. Early magazine guns demanded an even higher level of craftsmanship in order to create a perfect seal between the rotating breechblock and the stored powder, lest the combustion in the chamber ignite the magazine. The best, like those made by the Florentine Michele Lorenzoni in the late seventeenth and early eighteenth centuries, minimized these dangers through slow, precise craftsmanship. But early magazine guns were perilous even in the hands of expert gunmakers. Lorenzoni's countryman, the famed gunmaker Bartolomo Girardoni, reportedly lost his left hand in a magazine explosion.<sup>5</sup>

15. As for muskets with superposed loads, they were mechanically simpler than the alternatives. But roman-candle style bursts of fire had limited utility on the battlefield and no utility off of it. Worse, like all but the best-made magazine arms, superposed load systems were notoriously perilous to the shooter on account of having so much explosive gunpowder packed into a single firearm. If the sequencing between rounds was off, the barrel could explode like a

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<sup>4</sup> W. W. Greener, *The Gun and Its Development*, 9th ed. (London: Cassell and Company, LTD, 1910), 80.

<sup>5</sup> On early magazine arms specifically, Greener (p. 81) writes: "The peculiar complication of the various mechanisms, and the general inutility of the weapons themselves, render a detailed description of little value to the inventor or the general reader; but the connoisseur will find several varieties in the Paris Museum." For Girardoni's accident, see Eldon G. Wolff, *Air Guns*, Milwaukee Public Museum Publications in History 1 (Milwaukee, WI: North American Press, 1968), 27.

tubular grenade in the shooter's hands. Smoke was another issue. In the gunpowder era, even regular, single-shot muskets produced clouds of acrid white smoke that obscured battlefield targets. Firing a superposed load just once made that problem five, ten, or twenty times worse (depending on the number of loads). The final major drawback to most superposed load designs was that even when everything went according to plan, the shooter had little or no control over the pace of firing. All he could do was point the gun, say a prayer, brace himself for an epic recoil, pull the trigger once, and hope that the eight or ten or twenty charges inside the barrel went in the right direction. Such weapons had little utility outside of formal warfare, and their dangerous drawbacks meant that they were seldom used in martial combat, either.

16. To be durable, reliable, affordable, and safe enough to achieve popularity, the experimental designs required metallurgical techniques and a level of machine precision unknown until well into the nineteenth century. Not until the advent of these and other breakthroughs (including the adoption of percussion-cap ignition in the 1830s and metal-jacketed ammunition in the 1850s) could repeating firearms become practical weapons of mass production, widespread military adoption, and commercial popularity.<sup>6</sup>

17. Neither hustling arms inventors looking to make a fortune nor military and political leaders hunting for battlefield advantage knew that, of course. Hope sprung eternal, on both sides. That is why numerous historic designs for high-capacity firearms exist, despite the technical and material limitations that prevented any of them from achieving commercial or military relevance.

#### **B. Repeating arms in the colonies and early United States**

18. Advances in high-capacity firearm technology usually arose in Europe prior to the nineteenth century, and most varieties of these unusual weapons stayed in Europe. Very occasionally, however, high-capacity firearms appear in the documentary record of early

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<sup>6</sup> For a summary of the basic technological hurdles and how they were finally overcome in the nineteenth century, see Joseph Bradley, *Guns for the Tsar: American Technology and the Small Arms Industry in Nineteenth-Century Russia* (DeKalb, Ill.: Northern Illinois University Press, 1990), 12–19.

America. Plaintiffs and their expert witnesses invoke such examples to suggest a longstanding tradition of repeating firearms in early America. Digging into the details of three of their examples, however, reveals instead that high-capacity firearms remained extremely rare well past the ratification of the Second Amendment.

19. In 1756, gunmaker John Cookson advertised a nine-shot magazine firearm for sale in Boston that he seems to have built in the Lorenzoni style.<sup>7</sup> The most recent scholarship on Cookson concludes that he was a skilled gunsmith from England who emigrated to Boston at the end of the seventeenth century. Finding little demand in the colonies for the high-end custom guns he had been trained to make, he embarked on a heterogenous career as a merchant, chimney sweep, and, occasionally, gunsmith. A few guns with his name survive in London, and they are very skillfully done.<sup>8</sup> But Cookson does not seem to have continued making magazine firearms in America. The advertisement in question is for a single gun, and my search of period newspapers suggests he placed no other such advertisements during his lifetime.<sup>9</sup> In his eighties by 1756, he seems to have decided to finally sell his prized magazine arm that he had made in England in his youth, had brought with him to America, and had kept all these years.<sup>10</sup> Plaintiffs are correct, then, that Cookson’s gun was “openly advertised for use by the general public.” [Eyre First Am. Compl. ECF 67 ¶ 48.] But his gun wasn’t an example of American-made repeating arms, much less an indication of a craft industry of building and selling such arms in Boston. Instead, it was a unique memento of the calling Cookson had left behind in England.

20. Philadelphia gunmaker Joseph Belton is another figure mentioned in the *Eyre* plaintiffs’ First Amended Complaint [ECF 67 ¶ 14] and in the declarations of their expert witnesses Stephen Helsley [ECF 109] and Ashely Hlebinsky [ECF 72]. One could get the

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<sup>7</sup> Cookson’s advertisement appeared in the Boston Gazette, April 12, 1756.

<sup>8</sup> David S. Weaver and Brian Godwin, “John Cookson, Gunmaker,” *Arms & Armour* 19, no. 1 (January 2, 2022): 43–63.

<sup>9</sup> Using the Readex collection America’s Historical Newspapers, I searched in all available newspapers for “Cookson” between 1690–1790. The Boston Gazette advertisement above was the only instance that he (Boston gunmaker John Cookson) appeared in the results.

<sup>10</sup> Weaver and Godwin, “John Cookson, Gunmaker,” 60.

impression from these declarations that the gun Belton tried to sell to the Continental Congress in 1777 was a breakthrough; or, more generally, that large-capacity firearms were a practical technology in the era of the American Revolution. Neither of these implications are correct.

21. Belton saw an opportunity for military contracts with the American Revolution. In 1775 he pitched an idea for a submersible with cannons that he claimed would sink British ships. Benjamin Franklin recommended Belton and his submersible idea to George Washington, but still the proposal went nowhere.<sup>11</sup> In 1777, he tried another approach. Belton informed the Continental Congress that “I have discover’d an improvement, in the use of Small Armes... which I have kept as yet a secret.” Surviving correspondence suggests that Belton was pitching a superposed load design. Intrigued, Congress placed an order for 100 of these “new improved” guns. Congress cancelled the order a few days after extending it, however, and refused to ever reconsider notwithstanding Belton’s increasingly desperate appeals.<sup>12</sup>

22. Plaintiffs, Helsley, and Hlebinsky all suggest that Congress withdrew its order because Belton was charging more than it could afford. It is true that Belton requested £500 from each state, a significant sum at the time.<sup>13</sup> But the Continental Congress issued about \$200 million in currency during the Revolutionary War (worth somewhere between \$5 billion and \$22

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<sup>11</sup> See Benjamin Franklin to Silas Deane, Philadelphia, Aug. 27, 1775, and editors’ footnote #2, available here: <https://founders.archives.gov/?q=joseph%20belton&s=1111311111&sa=&r=1&sr=>, accessed Jan. 27, 2023; Benjamin Franklin to George Washington, Philadelphia, July 22, 1776, and editors’ footnote #1, available here: <https://founders.archives.gov/?q=joseph%20belton&s=1111311111&sa=&r=3&sr=>, accessed Jan. 27, 2023; and George Washington to Benjamin Franklin, New York, July 30, 1776, available here: <https://founders.archives.gov/?q=joseph%20belton&s=1111311111&sa=&r=4&sr=>, accessed Jan. 27, 2023.

<sup>12</sup> The relevant correspondence has been digitized and transcribed, and is available here: [https://en.wikisource.org/wiki/Correspondence\\_between\\_John\\_Belton\\_and\\_the\\_Continental\\_Congress](https://en.wikisource.org/wiki/Correspondence_between_John_Belton_and_the_Continental_Congress), accessed Jan. 27, 2023. Helsley [ECF 109] and Hlebinsky [ECF 72] both incorrectly assert that Franklin and Washington were involved in considering these guns—there is no evidence for that. They were involved in considering his submersible scheme.

<sup>13</sup> See Joseph Belton to John Hancock, Philadelphia, May 8, 1777, at [https://en.wikisource.org/wiki/Correspondence\\_between\\_John\\_Belton\\_and\\_the\\_Continental\\_Congress](https://en.wikisource.org/wiki/Correspondence_between_John_Belton_and_the_Continental_Congress), accessed Feb. 4, 2023.

billion today).<sup>14</sup> It clearly had the wherewithal to hire Belton if it had wanted to. Congress could and would have paid his price if it believed he and his guns would deliver a meaningful military advantage. That delegates evidently didn't believe this tells us much about the quality of the arms on offer. Buying 100 superposed load arms for a reasonable price might have made sense. Anything more than that was clearly not worth Congress's time.

23. What became of Belton's "new improved" guns in the absence of government contracts? Hlebinsky alleges that he sold his 100 guns to the public. [ECF 72 ¶ 21]. This claim is helpful to her broader argument that private consumers were often at the forefront of new firearms technologies. It would have been surprising if Belton had sold his guns to the public, given that there was no obvious civilian application for a gun that fired a burst of ten or more rounds with a single pull of the trigger (even leaving aside the weapon's many drawbacks). But Belton's correspondence makes it clear that he did not sell these hundred guns to the public, and indeed could not have, for he never manufactured them in the first place.<sup>15</sup>

24. Given the technical challenges afflicting repeat-fire gunpowder weapons, whether rotating breech-, multi-barrel-, magazine-, or superposed load-designs, it is little wonder that one of the only large-capacity weapons from the period that enjoyed even limited, experimental military use in a European army wasn't a true firearm, but rather an air-gun. Using highly compressed air as the propellant, rather than gunpowder, eliminated many of the problems that had long bedeviled the quest for repeating arms. It was a relatively simple enhancement to attach a fixed tubular magazine to the side or underside of the air-gun's barrel, and to feed balls into the chamber (using gravity, by tipping the barrel up), one-by-one with a lever. The shooter

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<sup>14</sup> For wartime currency, see Stephen Mihm, "Funding the Revolution: Monetary and Fiscal Policy in Eighteenth-Century America - Google Search," in *The Oxford Handbook of the American Revolution* (Oxford; New York: Oxford University Press, 2013), 334. For present-day value, see <https://www.measuringworth.com/calculators/uscompare/relativevalue.php>, accessed Jan. 27, 2023.

<sup>15</sup> In his second letter to Congress, dated May 7, 1777 (available at link above), Belton writes: "provided I should fail in compeating the armes as I had therein set fourth, I would have no rewards as I desire not my Counteries money without rendering Services adiuate thereto." He continues to say he would not start work on the guns until Congress meets his inflated price: "until it is agreed to, or something simular, I shall beg to be exus'd from superintending & directing the altering of any Muskets."

could then fire as many rounds as the magazine would hold before needing to reload the fixed magazine. Depending on the size and pressure of the compressed air reservoir, the shooter might even be able to empty the magazine more than once before needing to refill the propellant. As with other categories of repeaters, air-guns had been produced since at least the sixteenth century and probably earlier.<sup>16</sup>

25. The most impressive air-gun of the period was developed in Vienna by one-handed Bartolomeo Girardoni, shortly after the American Revolution. Following his gruesome accident working with magazine firearms, he decided he'd had enough of gunpowder weapons and transitioned to air-guns. Girardoni made a number of improvements to existing designs, most especially an elegant breechblock mechanism for chambering balls from the attached magazine. Multi-shot air-rifles of his design saw limited service in the Austrian military between the 1790s and 1810s, a special corps of hundreds of snipers being equipped with the weapon. Air-rifles had numerous advantages over gunpowder weapons. In addition to the ease with which they were configured for multi-fire, they required no gunpowder (not always easy to obtain), and the absence of gunpowder meant that their bores required little cleaning and that shots produced no smoke and little noise.<sup>17</sup>

26. Nonetheless, air-guns had major drawbacks that consigned them to the status of military oddities and niche consumer items, notwithstanding their significant advantages. Period technology made it difficult to achieve air pressures commensurate with black powder, so power was one concern.<sup>18</sup> The weapons were time-consuming and onerous to prime. Girardoni's air-rifles had to be pumped fifteen-hundred times to fully pressurize one reservoir. Cannisters of

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<sup>16</sup> Eldon G. Wolff, *Air Guns*, Milwaukee Public Museum Publications in History 1 (Milwaukee, WI: North American Press, 1968), 5–13. Girardoni's name is commonly misspelled Girandoni. For background on his air rifle, see the learned essay by Robert D. Beeman, "New Evidence on the Lewis and Clark Air Rifle – an 'Assault Rifle' of 1803," <http://www.beemans.net/lewis-assault-rifle.htm>, accessed Feb. 4, 2023.

<sup>17</sup> For advantages, see Wolff, 25–30.

<sup>18</sup> According to an article in the *Sportsman's Cyclopedie* from 1831, "For buck or deer shooting the best air gun is not sufficiently powerful; for rook shooting it is very well calculated." Cited in Wolff, 22.

pressurized air can explode, much like early gunpowder magazines, producing grenade-like effects. The craft and expense involved in building reliable air-guns greatly exceeded even the considerable skill required to build fine firearms. Air-tight reservoirs, pumps, valve housings and valve seats had to be made with a degree of precision unknown in most manufactured goods from the era. These material and technical demands greatly increased costs. Moreover, even a craftsman of Girardoni's caliber did not yet have the materials or tools necessary to build the critical components of his design durably and with absolute precision. The air-gun's various delicate parts could easily fall out of order, as for instance when leather gaskets failed or any of the system's metal threads (necessary for attaching the removable air-reservoir to the valve assembly and the valve assembly to the gun) came out of alignment. Competent repairs were hard to secure because the requisite skills were so unusual. According to one of the few book-length studies of historic air-guns, the high cost of these arms and their various limitations made them "a novelty used by people of wealth who had sufficient funds to go in for the unusual."<sup>19</sup>

27. For all of these reasons, air-guns were exceedingly rare in eighteenth-century America. Indeed, they were so rare that owners could charge people to see them. Two months after the Second Amendment was ratified, a museum proprietor in New York named Gardiner Baker took out ads in the city's newspapers to promote his latest acquisition: "an air gun, made by a young man, a native of Rhode-Island." According to its new owner, the gun would "do execution twenty times, without renewing the charge," suggesting that it was a single-shot weapon capable of firing twenty individually loaded rounds before needing to renew the compressed air supply. Baker explained that he had purchased the gun "at a very considerable price, with a view eventually to make it the property of the American museum." In order to

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<sup>19</sup> For disadvantages, see Wolff, 30–33. Quote from p. 31. See also John Paul Jarvis, "The Girandoni Air Rifle: Deadly Under Pressure," March 15, 2011, <https://www.guns.com/news/2011/03/15/the-girandoni-air-rifle-deadly-under-pressure>, accessed Feb. 4, 2023.

recoup his investment, he announced that he would “exhibit it to the examination of all persons desirous of viewing it, and of discharging a shot, for which they shall pay six-pence.”<sup>20</sup>

28. Plaintiffs, Helsley, and Hlebinsky observe that Meriwether Lewis brought a Girardoni Air Rifle on his famous expedition across the continent with William Clark. Plaintiffs incorrectly assert that that this weapon served a critical military purpose, claiming that while usually outnumbered by Native adversaries, the expedition was able to defend itself “in large part because of the rifle.” [First Am. Compl. ECF 67 ¶ 49.] In fact, the Corps of Discovery seems never to have used the gun offensively or defensively. None of the more than twenty references to the air-rifle in the expedition’s journals involve combat.<sup>21</sup> Instead, like virtually every other large-capacity firearm from that period, this unusual weapon was employed as a show piece. Lewis brought the air-rifle on the expedition precisely because it was so uncommon. He hoped a gun that would fire multiple times without powder, flash, smoke, or much noise, would impress Native Peoples. It did. He happily reported that it “excite[d] great astonishment,” which is itself a testament to the weapon’s novelty.<sup>22</sup> But Indigenous people weren’t the only ones fascinated with this exotic gun. At the very outset of the expedition near Pittsburgh, “some gentlemen” asked for a demonstration. Lewis obliged, firing the air-gun seven times. But when one of the men took hold of the weapon, he accidentally squeezed off an eighth shot that hit a woman forty yards away, in the head. To his great relief, Lewis found the woman’s “wound by no means mortal, or even dangerous.”<sup>23</sup> That the gun’s eighth round inflicted only a minor wound at forty yards suggests it lost pressure rapidly and might not have

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<sup>20</sup> “To the Curious,” *The Weekly Museum* (New York, NY), Feb. 11, 1792. A copy of this article is attached as Exhibit B.

<sup>21</sup> For a discussion of the air gun and the expedition, see Jim Garry, *Weapons of the Lewis and Clark Expedition* (Norman, Okla: The Arthur H. Clark Company, 2012), 91–103.

<sup>22</sup> April 18, 1806, entry by Meriwether Lewis, *Journals of the Lewis & Clark Expedition*, <https://lewisandclarkjournals.unl.edu/item/lc.jrn.1806-04-18#lc.jrn.1806-04-18.01>, accessed Feb. 4, 2023.

<sup>23</sup> August 30, 1803, entry by Meriwether Lewis, *Journals of the Lewis & Clark Expedition*, <https://lewisandclarkjournals.unl.edu/item/lc.mult.1803-08-30kloefkorn>, accessed Feb. 4, 2023.

actually been able to fire more than ten effective rounds (our criteria for a “large-capacity firearm”).

29. Air-guns remained rare curiosities elsewhere in the U.S. in the early nineteenth century. Just a few months before Lewis and Clark set out, the museum in Connecticut’s State House advertised an air-gun as one of its three prime attractions (the others being a wampum cloak and a sixteen-foot-long snake skin from South America). In no sense were these weapons in common use at the time.<sup>24</sup>

30. In sum, notwithstanding the great desire of states for military advantage, the great incentives that they held out for inventors who could deliver it, and the centuries of skillful effort that went into chasing those incentives, large-capacity firearms remained militarily and commercially irrelevant throughout the eighteenth and early nineteenth centuries. On those very rare occasions when such weapons were deployed by European militaries, they were issued to dozens or hundreds of men in wars involving tens or hundreds of thousands of combatants. Commercially, the best (and most expensive) examples of high-capacity firearms circulated among a paper-thin slice of Europe’s political and economic elite. For almost everyone else at the time, these guns were unknown and irrelevant.

31. I’ve spent the past twelve years studying the international arms trade in the Age of Revolutions (1763-1825). I have never come across any evidence in primary sources that large-capacity firearms were anything other than exotic curios in this era. Few alive at the time had ever laid eyes on one. Single-shot muzzle-loading smoothbore muskets, rifles, and pistols remained the only handheld firearms that the vast majority of people ever owned, used, or encountered in the late-eighteenth and early-nineteenth centuries. That fact ought to be borne in mind when assessing the absence of laws regulating ammunition capacity at the time the Second Amendment was adopted.

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<sup>24</sup> “James Steward’s advertisement “Museum,” in *The Connecticut Courant*, April 27, 1803. A copy of this advertisement is attached as Exhibit C.

### C. Firearms regulation in America prior to 1791

32. Authorities in British North America and in the early United States passed hundreds of laws that directly or indirectly regulated firearms prior to 1791. Nearly all of them were motivated by concerns for public safety. Sometimes they anticipated laws in our own times. For example, colonies and states passed laws regulating the brandishing or carrying of particular weapons; proscribing particular activities with them (dueling, for instance); forbidding firing in certain times and places; magnifying sentences for crimes committed with them; and banning them from sensitive places.<sup>25</sup>

33. These types of laws, regulating the use of deadly weapons within white communities, reflect public safety concerns familiar to twenty-first century Americans. But regulating gun violence between subjects (or, after independence, citizens) wasn't as significant a policy concern in early America as it is today. Prior to the widespread availability of breechloading weapons and metallic cartridges in the mid-nineteenth century, firearms were awkward tools either for perpetrating or resisting crimes of passion. They were notoriously inaccurate at range and had to be muzzle-loaded with gunpowder and ball before every shot, either by pouring ammunition direct into the barrel or packing in a pre-made paper cartridge loaded with powder and ball. That took time and focus. Moreover, such guns could not be kept safely armed and at the ready for any extended period because black powder corroded iron barrels so quickly. Partly for these reasons, firearms usually played a relatively small role in murders between white people in North America before the era of the Civil War. Randolph Roth, the nation's foremost scholar of the history of homicide in North America, has found for example that only 10-15% of family and intimate partner homicides involved a firearm prior to the mid-nineteenth century. More generally, rates of gun violence rose and fell in step with political instability and shifts in faith in government, justice, and social hierarchy. At its worst, firearms were never used in more than two-fifths of homicides between unrelated white people

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<sup>25</sup> For a discussion of these laws by category, see Robert J. Spitzer, "Gun Law History in the United States and Second Amendment Rights," *Law and Contemporary Problems* 80 (2017): 55-83.

before the Civil War era. By way of comparison, in 2020 nearly four-fifths of all homicides in the United States involved a firearm.<sup>26</sup>

34. The large majority of pre-1791 laws pertaining to firearms reflect public safety concerns that are (thankfully) alien to our own times. In the first instance, firearms were necessary for the two systematic forms of violent predation that preoccupied generations of European colonists and American citizens: dispossessing Native People of their land and terrorizing and enslaving people of African descent (nearly a fifth of the population in the thirteen colonies in 1775). Neither project could have been sustained without a weapons gap. Moreover, European rivals (the Dutch, French, Spanish, and, after Independence, British) controlled parts of eastern North America and periodically threatened the ambitions and security of British colonists and U.S. citizens. During wartime, these rivals also threatened to arm the Indigenous and African-descent victims of the British and early U.S. project. Anglo authorities before and after Independence used law to try and answer these interconnected challenges to the safety of the white public.

35. The largest category of relevant legislation, hundreds of militia laws, sought to encourage and regulate firearm possession, upkeep, and practice by white men throughout the colonies and states in the early national era. The militia was the primary vehicle for public safety in the colonial and early national era, tasked with collective security needs of a white slaveholding, settler-colonial public periodically menaced by European rivals. Militias were state-led, definitionally. Of course, white colonists sometimes came together in armed bodies to pursue collective goals in defiance of government. But those weren't militias. The men involved in Bacon's Rebellion (Virginia, 1676) and the Regulator Insurrection (North Carolina,

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<sup>26</sup> For homicide and arms technology, see Randolph Roth, "Why Guns Are and Are Not the Problem: The Relationship between Guns and Homicide in American History," in *A Right to Bear Arms? The Contested Role of History in Contemporary Debates on the Second Amendment*, ed. Jennifer Tucker, Barton C. Hacker, and Margaret Vining (Washington D.C.: Smithsonian Scholarly Press, 2019), 113–34. For 2020 homicides, see John Gramlich, "What the Data Says about Gun Deaths in the U.S.," *Pew Research Center* (blog), February 3, 2022, <https://www.pewresearch.org/fact-tank/2022/02/03/what-the-data-says-about-gun-deaths-in-the-u-s/>, accessed Feb. 4, 2023.

1766-71), like the participants of Shay's Rebellion (Massachusetts, 1786-87) and the Whiskey Rebellion (primarily Pennsylvania, 1791-94) following Independence, were members of criminal insurrections suppressed by state power. *Militias* were formal, compulsory, selective (almost always confined to able-bodied white men and often excluding or excusing categories of able-bodied white men), and, by definition, deployed for state-sanctioned purposes.<sup>27</sup>

36. Colonial authorities passed more than six hundred militia laws before the Revolution, laws mandating how these bodies were to be constituted, mobilized, equipped, led, disciplined, and armed. Research in militia returns, census data, and probate records makes it clear that government exerted a powerful influence on the geography of gun ownership in the British colonies, and that it did so primarily through the mechanism of militia laws. Gun ownership was highest in those colonies where governments energetically encouraged and supported militia service. These were places where the violence of slavery and settler colonialism, and/or the threat of nearby imperial rivals inevitably resulted in security concerns. In such places, colonial authorities mandated gun ownership and, in times of heightened anxiety, took steps to equip militiamen who lacked their own arms.<sup>28</sup>

37. Colonial and early national legislatures also passed numerous laws aimed at depriving Indigenous and enslaved people of access to arms and ammunition.<sup>29</sup> Reading the Hlebinsky declaration, [ECF 72], and first declaration of Clayton Cramer, [ECF 74], one might conclude that early American firearm restrictions were inherently racist. That framing is

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<sup>27</sup> K. Sweeney, "Firearms, Militias, and the Second Amendment," in *The Second Amendment on Trial: Critical Essays on District of Columbia v. Heller*, by Saul Cornell and Nathan Kozuskanich (Amherst & Boston: University of Massachusetts Press, 2013), 310–82. See also Saul Cornell, *A Well-Regulated Militia: The Founding Fathers and the Origins of Gun Control in America* (Oxford ; New York: Oxford University Press, 2006), 30–37.

<sup>28</sup> In addition to Sweeney, see James Lindgren and Justin L. Heather, "Counting Guns in Early America," *William and Mary Law Review* 43 (2001): 1777; Michael Lenz, "Arms Are Necessary": *Gun Culture in Eighteenth-Century American Politics and Society* (Köln: Böhlau, 2010).

<sup>29</sup> For laws targeting Native and enslaved people, see examples in John C. (John Codman) Hurd, *The Law of Freedom and Bondage in the United States* (Boston: Little, Brown & Co., 1858), 1:234, 243–44, 257, 288, 302–6; Sally E. Hadden, *Slave Patrols: Law and Violence in Virginia and the Carolinas* (Cambridge, Mass.; London: Harvard University Press, 2003), 37.

misleading, for two reasons. First, it obscures the distinction between law and actual practice. Notwithstanding various prohibitions in colonial and early-national law, Indigenous polities in eastern North America were undoubtedly the best-armed societies on the continent per-capita during the eighteenth and early nineteenth centuries. Most Native men east of the Mississippi had extensive military training with firearms; engaged in commercial hunting as their primary economic activity; owned several firearms over the course of their lifetimes; and consumed significant amounts of gunpowder every year. Notwithstanding periodic war-time embargos, European traders and authorities in North America made these goods available to Native consumers both as a matter of commerce and of politics.<sup>30</sup>

38. Enslaved people didn't have remotely the same access to firearms and ammunition, of course. But guns are tools as well as weapons. Enslavers often wanted their human "property" to do work with guns. Consequently, colonial and early national laws contain many exceptions allowing for enslaved people to keep and bear arms if accompanied by a white person, for example, or if they had been issued "a ticket or license in writing from his master, mistress or overseer;" or if they were carrying their owner's firearms from place to place; or if they were using guns to protect crops from birds.<sup>31</sup> Vulnerable South Carolina, a colony with an enslaved majority that was perilously close to Spanish Florida to the south and to the mighty Creek and Cherokee nations to the West, armed enslaved men for military service throughout most of the colonial era.<sup>32</sup> There is also ample archaeological evidence for the chasm between law and reality. Excavations at slave quarters at Washington's Mount Vernon and other sites throughout the South often encounter the remains of waterfowl and small game alongside lead

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<sup>30</sup> See David J. Silverman, *Thundersticks: Firearms and the Violent Transformation of Native America* (Cambridge, Massachusetts: Belknap Press, 2016). For the ineffectiveness of most laws against trading arms with Native people, see 15–16.

<sup>31</sup> Quotes are drawn from Mark Frassetto, "Firearms and Weapons Legislation up to the Early 20th Century," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, January 15, 2013), 84.

<sup>32</sup> For South Carolina, see John W. Shy, "A New Look at Colonial Militia," *The William and Mary Quarterly* 20, no. 2 (1963): 181; Maria Alessandra Bollettino, "Slavery, War, and Britain's Atlantic Empire: Black Soldiers, Sailors, and Rebels in the Seven Years' War" (Ph.D. Dissertation, Austin, TX, University of Texas, Austin, 2009), 41–50.

shot and flints, indicating that enslaved people routinely supplemented their meager rations by hunting with firearms. First, then, when Cramer observes that “colonies and states utterly prohibited possession or carrying of arms by members of suspect groups,” [ECF 74 at 9] we need to distinguish between legislation and what actually happened.<sup>33</sup>

39. Second and more fundamentally, law is an expression of social values and priorities. Pre-1791 laws targeted Native and Black people not because early American gun regulation was (or is) racist. Laws targeted Native and Black people because early American society was racist. A society built on despoiling and exploiting nonwhite people will inevitably define public safety in racist terms, and construct a legal regime targeting racial others. But whites could also be coded as social threats. When moved to do so by concerns for public safety, colonial and early national authorities were absolutely willing to deprive white people of firearms, too.

40. This is what happened in the early stages of the American Revolution. Patriot committees began disarming white political opponents as early as the fall of 1775. Events in the colony of New York illustrate the pattern. Patriots in Brookhaven, New York, resolved in September 1775 to disarm anyone who dared “deny the authority of the Continental or of this Congress, or the Committee of Safety, or the Committees of the respective Counties, Cities, Towns, Manors, Precincts, or Districts in this Colony.” At this point in the rebellion most residents of New York were likely either loyalists or vainly hoping to remain neutral in the spiraling conflict with Britain, so such disarmament orders theoretically applied to a vast population. In January, 1776, the Continental Congress ordered several hundred-armed minutemen into Queen’s County in upstate New York to disarm loyalists. George Washington

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<sup>33</sup> For gun flints and lead shot in the “House for Families” slave quarters at Mount Vernon, see Laura A. Shick, “An Analysis of Archaeobotanical Evidence from the House for Families Slave Quarter, Mount Vernon Plantation, Virginia” (M.A., United States -- District of Columbia, American University, 2005), 38. For animal remains and hunting, see Mary V. Thompson, *The Only Unavoidable Subject of Regret”: George Washington, Slavery, and the Enslaved Community at Mount Vernon*, n.d., 229. For digs more generally, and for the observation that “it is a gross exaggeration to say, as Michael Bellesiles has done, that slaves ‘did not have a single gun,’” see Philip D. Morgan and Andrew Jackson O’Shaughnessy, “Arming Slaves in the American Revolution,” in *Arming Slaves: From Classical Times to the Modern Age*, by Christopher Leslie Brown and Philip D. Morgan (New Haven: Yale University Press, 2006), 183–85.

ordered General Charles Lee to disarm everyone in Long Island “whose conduct, and declarations have render’d them justly suspected of Designs unfriendly to the Views of Congress.” General Philip Schuyler disarmed “malignants” in the Hudson Valley, mostly Scotch Highlanders loyal to the king. In March of 1776, Congress concluded that nearly the entire population of Staten Island consisted of “avowed Foes” and ordered a general disarmament there.<sup>34</sup>

41. Disarmament was not confined to New York. Frustrated at the results of more targeted efforts, the Continental Congress called for a general disarmament of loyalists on March 14, 1776. It recommended to all the individual colonies that they immediately “cause all persons to be disarmed within their respective colonies, who are notoriously disaffected to the cause of America, or who have not associated, and shall refuse to associate, to defend, by arms, these United Colonies.”<sup>35</sup> In addition to New York, Patriot leaders ordered loyalists disarmed in Connecticut<sup>36</sup>, North Carolina<sup>37</sup>, New Jersey<sup>38</sup>, South Carolina<sup>39</sup>, Pennsylvania<sup>40</sup>,

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<sup>34</sup> New York examples drawn from Thomas Verenna, “Disarming the Disaffected,” *Journal of the American Revolution*, Aug. 26, 2014.

<sup>35</sup> See Congressional resolutions of Tuesday, Jan. 2, 1776, in Worthington Chauncy Ford, ed., *Journals of the Continental Congress, 1774-1789, Edited from the Original Records in the Library of Congress* (Washington, D.C.: Government Printing Office, 1904), 4:205.

<sup>36</sup> “An Act for restraining and punishing Persons who are inimical to the Liberties of this and the rest of the United Colonies,” Connecticut Assembly, Dec. 14, 1775, AA: 4:270-72.

<sup>37</sup> “Extract of a Letter from the Provincial Council of North Carolina, March 5, 1776,” in M. St. Claire Clarke and Peter Force, eds., *American Archives: Consisting of a Collection of Authentick Records, State Papers, Debates, and Letters and Other Notices of Publick Affairs, the Whole Forming a Documentary History of the Origin and Progress of the North American Colonies; of the Causes and Accomplishment of the American Revolution; and of the Constitution of Government for the United States, to the Final Ratification Thereof. In Six Series* ..., 4 (Washington D.C., 1837), 5:59. [Hereafter AA]. See also AA 5:67.

<sup>38</sup> “July 1, All persons who refuse to bear arms to be disarmed,” AA 6:1634.

<sup>39</sup> South Carolina Congress, March 13, 1776, AA 5:592. South Carolina went further, ordering that if anyone previously disarmed shall arm himself again, that person would be incarcerated.

<sup>40</sup> See resolves of the Pennsylvania Assembly for April 6, 1776, AA 5:714.

Massachusetts<sup>41</sup>, Maryland<sup>42</sup>, and Virginia.<sup>43</sup>

42. There were two obvious motivations for the Founding Fathers and likeminded Americans to orchestrate a nationwide disarmament campaign against white political opponents. First, loyalists could of course use their weapons to resist the insurgency and fight for the king. Second, patriot forces were perilously under-armed and needed whatever guns they could find. This is the reason that George Washington argued for a broad confiscation program, targeting those who “claimed the Right of remaining Neuter” as well as those actively fighting for the crown. Indeed, patriot forces were so desperate for guns early in the war that they sometimes disarmed whites regardless of their political affiliation. In early 1776, Georgia (a tenth colony to add to the list above) dispatched men to search the homes of all “overseers and negroes” throughout the colony, and even those across the river in southern South Carolina, in order to seize all guns and ammunition they found, leaving behind only “one gun and thirteen cartridges for each overseer.”<sup>44</sup> From Massachusetts in the north to Georgia in the south, guns were taken away from white Americans in the name of public safety—public safety as the founding generation defined it.

43. In sum, early America had a diverse and extensive tradition of regulating firearms in the name of public safety. Why, then, do we find no period laws restricting the size of firearm magazines? Plaintiffs and their expert witnesses seem to attribute the absence of such regulations to an ideological disposition against regulating high-capacity firearms. This viewpoint presumes a curious and unconvincing theory of lawmaking, one where legislators regulated technologies before they had any impact on society. Like their counterparts today, lawmakers from early America preoccupied themselves with actual social phenomena—not the possible implications of experimental technologies. They didn’t spend their time scouring

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<sup>41</sup> See notes from the Massachusetts Council, May 1, 1776, AA 5:1301.

<sup>42</sup> See notes from the Baltimore County Committee, March 8, 1776, AA 5:1509.

<sup>43</sup> Extracts from the Votes of the Assembly [VA], April 6, 1776, AA 6:881.

<sup>44</sup> Allen Daniel Candler, ed., *The Revolutionary Records of the State of Georgia* (Atlanta, Ga.: The Franklin-Turner Company, 1908), 92.

European publications for news about the cutting edge of firearms technology or hold lengthy debates about the social implications of weapons that few of them had ever seen, and that were not known to have ever been militarily or commercially consequential anywhere in the world.

44. Even if they had been aware that a Philadelphia gunmaker had a secret method of firing twenty superimposed loads with a single pull of a trigger, or that a museum proprietor in New York was charging people to see a repeater that fired compressed air, lawmakers in the colonial and early national eras would have had no incentive to craft legislative solutions to these technologies because these technologies had created no social problems. They remained flawed curiosities. The simplest and most accurate explanation for the absence of regulation, therefore, is that high-capacity firearms were much too rare to attract regulatory attention in 1791.

45. An appropriate modern-day analogy might be personal jetpacks. Much as high-capacity firearms did during the eighteenth-century, personal jetpacks have held appeal both for militaries and private consumers for more than a hundred years. That appeal has generated competition in research and development. But jetpacks remain an expensive and experimental curiosity to this day, because of stubborn technological, safety, and practical challenges, including cost. A future historian (or jurist) discovering evidence that a patent was taken out on a jetpack design as early as 1919 (it was); that militaries remained intrigued by the technology throughout the century (indeed, they still are); and that the jetpack commanded enduring popular interest, could conclude that the absence of public regulation reflected an ideological disposition against regulating jetpacks. But the simpler and most accurate explanation would be that jetpacks remained too rare to attract regulatory attention in 2023.<sup>45</sup>

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<sup>45</sup> Anthony Quinn, “The Fall and Rise of Jetpacks,” Aug. 16, 2022, Royal Aeronautical Society Website, <https://www.aerosociety.com/news/the-fall-and-rise-of-jetpacks/#:~:text=The%20concept%20of%20a%20jetpack,never%20built%20or%20even%20prototyped>, accessed Feb. 4, 2023.

**II. High-capacity firearms became reliable consumer items prior to the ratification of the Fourteenth Amendment, but still accounted for less than 0.002% of all guns in the United States in 1868.**

46. Firearms technology would undergo dramatic evolution after 1791. Advances in metallurgy, machine tooling, and mass-production associated with the Industrial Revolution enabled gifted firearms innovators and engineers to finally overcome many of the challenges that had frustrated the quest for reliable repeat fire in earlier centuries. New innovations built on one another, such that the period from the 1820s through the 1860s became one of the most productive and dynamic in the history of firearms technology. Nonetheless, even this era of breakneck innovation had its limits. As I explain below, reliable hand-held arms with capacities greater than ten rounds remained exceedingly rare in the United States when the Fourteenth Amendment was ratified in 1868.

**A. False starts and repeat-fire pistols**

47. The evolution of firearms technology had its false starts after the ratification of the Second Amendment. In 1792, for example, while the new government was reeling from a series of catastrophic military defeats at the hands of Indigenous warriors in the Ohio Country, a Pennsylvanian named Joseph Chambers tried to interest Secretary of State Thomas Jefferson in a superposed load repeater of his design.<sup>46</sup> “Every nation desiring to possess the means of destroying the greatest number possible of their enemies,” Jefferson responded enthusiastically, “your discovery, if found effectual in experiment, will not want patronage anywhere.”<sup>47</sup> Put differently, if Chambers could deliver, the inventor would become a very wealthy and influential man. But, like so many who came before (and after) him, Chambers was unable to convince Jefferson or others in the new U.S. government that his firearm was “effectual in experiment.”

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<sup>46</sup> To Thomas Jefferson from Joseph G. Chambers, 13 August 1792, *Founders Online*, National Archives, <https://founders.archives.gov/documents/Jefferson/01-24-02-0274>. [Original source: *The Papers of Thomas Jefferson*, vol. 24, 1 June–31 December 1792, ed. John Catanzariti. Princeton: Princeton University Press, 1990, pp. 290–293.]

<sup>47</sup> From Thomas Jefferson to Joseph G. Chambers, 5 November 1792, *Founders Online*, National Archives, <https://founders.archives.gov/documents/Jefferson/01-24-02-0539>. [Original source: *The Papers of Thomas Jefferson*, vol. 24, 1 June–31 December 1792, ed. John Catanzariti. Princeton: Princeton University Press, 1990, p. 580.]

Chambers had more success during the War of 1812, when the new Department of the Navy purchased a few hundred weapons of his design (different designs all employing superposed loads). Though it isn't clear any of the guns were ever put to use, the designs were sufficiently intriguing that multiple foreign governments made inquiries. These inquiries concluded that the dangers and disadvantages of superposed loads still outweighed their advantages.<sup>48</sup>

48. In 1821, another American gunmaker, Isaiah Jennings of New York, obtained a patent for a gun with a sliding lock that enabled the shooter to fire superposed loads one at a time—a significant improvement over typical designs. He had two basic models: one that fired four shots, and another (rarer) that fired ten. Jennings contracted with the state of New York in 1828 to deliver 520 of his guns. While ingenious, these select-fire superposed load flintlocks were expensive, mechanically complex, and still prone to the same catastrophic dangers that afflicted all superposed load designs.<sup>49</sup> The Jennings repeaters were technological dead-ends with no military or commercial impact.

49. One would not know that from reading the plaintiffs' complaints and preliminary injunction briefing. It's instructive to consider the other guns that the plaintiffs mention alongside the Jennings, supposedly as examples of the wide variety of functioning, viable, large-capacity firearms available to U.S. consumers before 1868. The firearms they mention include 24-shot pepperboxes, which as far as I can discover never existed (perhaps they were built in tiny quantities as exotic showpieces); the Bennett and Haviland Rifle, one of the more unsafe firearms ever built (fewer than ten ever made—the website guns.com characterizes it as being as “safe as juggling chainsaws”); a 21-round Colt revolver, which to my knowledge Colt never manufactured; the Walch 12-shot Navy revolver, of which only about 200 were ever made; a 15-round Hall Rifle, a revolving rifle made in experimental or showcase quantities and vanishingly

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<sup>48</sup> For Chambers' proposal in context, see Andrew Fagal, “The Promise of American Repeating Weapons, 1791-1821,” published online at *Age of Revolutions*, Oct. 20, 2016, <https://ageofrevolutions.com/2016/10/20/the-promise-of-american-repeating-weapons-1791-1821/>, accessed Feb. 4, 2023.

<sup>49</sup> *Flayderman's Guide* (9e), characterizes the Jennings Repeating Flintlock as “one of the great military rarities and oddities” (p. 608).

rare today; “the 38-shot Porter Rifle,” which was actually a 9-shot firearm (the plaintiffs seem to have mistaken its caliber for its capacity) built around the unsafe (and, therefore, commercially doomed) turret chamber design and produced in the hundreds; the 42-shot Enoy “ferris wheel” pistol, a bizarre experiment, apparently never made beyond prototypes, that would have been too heavy to hold and aim in one hand; and a 20-round belt-fed chain pistol, a patented design from 1855 that was as intriguing as it was impractical (imagine a bicycle chain hanging eight inches down from the barrel of a revolver). (*See e.g.*, *Eyre* Plaintiffs’ First Am. Compl. ¶ 50) (listing “examples” of high-capacity firearms). Like the Jennings, these interesting guns never did meaningful work in the world.<sup>50</sup>

50. But more lasting changes in firearms technology were underway. One of the most important was the development the percussion-cap ignition system. Around the turn of the century, European chemists developed a new class of highly explosive compounds, dubbed fulminates. Though the potential military applications of these compounds were tantalizing, early experiments demonstrated that they were much too powerful to be used in firearms or artillery as an alternative propellant to gunpowder. In 1805, Englishman Alexander Forsyth had the insight that while fulminates could not yet be used for propulsion, in very small quantities they could be used for ignition. Others soon improved on his idea. By the 1810s, multiple inventors were developing “percussion caps”—small, sealed caps (usually made of copper) filled with fulminate. It was a simple matter to redesign gun locks so that instead of a vice holding a flint, hammers looked like actual hammers. Rather than a pan filled with priming powder, the newly designed hammer would fall upon an iron nipple topped with a percussion cap. The percussion would ignite the fulminate, which would in turn ignite the main gunpowder charge inside the barrel. Percussion caps were inexpensive to mass produce, and far more reliable than flints as a source of ignition. Over the next few decades, militaries around the world would convert their stockpiles of firearms from flintlocks to percussion locks.

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<sup>50</sup> For quote, see <https://www.guns.com/news/2012/04/03/bennett-and-havilland-revolving-rifle>, accessed Feb. 1, 2023.

51. The advent of percussion cap ignition opened the way for reliable repeating pistols. Relieved of cumbersome hammer-vices, flints, and priming pans filled with loose powder, arms designers saw a path to using the old ideas of multiple, rotating barrels or rotating breeches to make practical weapons for the first time. Improvements in manufacturing and machine tooling made it possible both to build arms from nearly identical component parts, and to manufacture them at greater speed and less cost than ever before. By the 1830s, two types of repeating pistols were entering the market. The first featured three or more barrels that rotated around an axis (either manually or mechanically), the charge for each barrel ignited by a separate percussion cap. These arms were known as “pepperboxes.” The second type, skillfully refined, aggressively patented, and shrewdly marketed by the inventor Samuel Colt, featured a single barrel with a multi-chambered, rotating breech. Percussion caps were affixed to the rear of each chamber in the breech. The chamber rotated mechanically so that the cap affixed to successive chambers would assume position to receive the hammer’s blow and ignite the powder inside each chamber.

52. Both types of pistols appeared in a wide variety of styles and had become popular consumer items in the United States by mid-century. Unlike repeat-fire weapons in the eighteenth century, these new weapons had actual social consequences. And these social consequences generated legislation. Responding to rising public safety concerns over the increase in gun violence and the proliferation of concealable weapons (repeating pistols as well as bowie knives and other weapons), lawmakers across the country sought to regulate conceal-carry. The nation’s preeminent historian of gun law in early America calls this “the first wave of modern-style American gun-control laws.” More than thirty such laws were enacted around the country between the ratifications of the Second and Fourteenth Amendments.<sup>51</sup>

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<sup>51</sup> Saul Cornell, “Limits on Armed Travel under Anglo-American Law: Change and Continuity over the Constitutional Longue Durée, 1688-1868,” in *A Right to Bear Arms? The Contested Role of History in Contemporary Debate on the Second Amendment*, ed. Jennifer Tucker, Barton C. Hacker, and Margaret Vining (Washington: Smithsonian Institution, 2019), 79. Spitzer, “Gun Law History,” Table 1, 59-60; 63-64. For the relevant laws, see Frassetto, “Firearms and Weapons Legislation,” 20-24.

53. While recognizing the new firepower that repeat pistols made available to U.S. consumers, it is important to be mindful of two important limitations of pepperboxes and revolvers in this era. The first was capacity. Whether the firearm had rotating chambers or rotating barrels, there were practical design limits to how many shots it could fire from a single loading. Guns with too many chambers became too heavy, clunky, and hard to manage. The vast majority of revolvers produced in the nineteenth century held seven or fewer rounds.

*Flayderman's Guide to Antique American Firearms and Their Values*, now in its 9th edition, as Hlebinsky explains, [ECF 72 at 12 n.15], is “considered the gold standard in the evaluation of antique American-made firearms.” That authoritative guide lists only three nineteenth-century revolvers with greater than ten-round capacity. All of them were made in quantities best characterized as “experimental”—probably fewer than three hundred, combined.<sup>52</sup> Maybe it’s true, as Hlebinsky writes, that some pepperbox pistols “were capable of firing twelve, eighteen, or twenty-four rounds.” (*Id.* at 21). Flayderman makes no mention of any such weapons, and I have tried and failed to find examples in other credible sources. If they were ever produced, they were made as exotic curios.

54. The second important limitation from mid-nineteenth-century pistols and pepperboxes is that they took a very long time to load. To load a cap-and-ball revolver, the shooter had to fill each chamber with the appropriate measure of gunpowder, insert a ball, compact the ball into the powder charge with a ramming rod, cap the chamber with grease to avoid chain-fire (optional but recommended), and then individually attach percussion caps to each nipple at the back of the chamber.<sup>53</sup> Pepperboxes had comparably laborious loading

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<sup>52</sup> (1) The Aaron C. Vaughn Double Barrel Revolver, made in the early 1860s and characterized as “one of the most rare and unusual of American percussion revolvers,” held fourteen rounds. Total production: twenty or fewer. (2) The John Walch Navy Model 12 Shot Revolver, made in 1859-1860, chambered twelve rounds (six chambers, each with a double load). Total production: around 200. (3) The Charles E. Sneider two-cylinder revolver, made in the 1860s, held fourteen rounds (in two, seven-shot cylinders). “Quantity unknown; very limited. Extremely rare.” See Flayderman, *Flayderman's Guide to Antique American Firearms and Their Values*, 374–75, 514.

<sup>53</sup> For a demonstration, see <https://www.youtube.com/watch?v=B84wI2MKZ2s>

procedures. Paper cartridges containing powder and ball could be used to slightly expedite the process, but reloading would still take a minute to a minute and a half.

55. In terms of the damage that a single person can inflict with a firearm (or two), limited shot capacity and lengthy reload times made cap-and-ball revolvers and pepperboxes fundamentally different from today's semi-automatic pistols with detachable, large-capacity magazines. For comparison's sake, consider the handguns used by the killer in the Virginia Tech massacre on April 6, 2007. Using a Glock 19 and a Walther P22 and equipped with multiple magazines (of 15- and 10-round capacities, respectively) Seung-Hui Cho fired 174 shots in 9 minutes, killing 33 people and wounding 17 others before taking his own life.<sup>54</sup> Mass-murderers in the mid-nineteenth century could hardly have conceived of that kind of firepower.

#### **B. The slow spread of the first successful high-capacity firearm**

56. The technological and manufacturing advances that made repeat-fire pistols practical weapons for the first time also enabled new breakthroughs in long arms. Innovations in breech-loading and metal-jacketed ammunition proved particularly important. Loading a firearm muzzle-first had three disadvantages. It was hard to do while lying prone, and rising up to reload made one an easier target during combat. It meant that rifles were slow and difficult to load, because lead balls had to be nearly as large as the diameter of the barrel bore if they were to engage the internal grooves (rifling) that gave the round its spin. And it meant that repeat-fire was difficult to achieve, since the only way to feed more rounds into the barrel was through the muzzle. Guns loaded at the breech solved all of these problems. But they were very difficult to build well prior to the Industrial Revolution, mainly because it was so hard to make the breech accessible but also sufficiently sealable to contain explosive gases. Multiple, practical solutions to this problem emerged in the first half of the nineteenth century. In the U.S. alone, inventors patented 135 breech-loading firearm designs between 1811-1860.<sup>55</sup>

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<sup>54</sup> Violence Policy Center, "Background on Pistols Used in Virginia Tech Shooting," April, 2007. <https://vpc.org/studies/vatechgunsbackground.pdf> Accessed Feb. 1, 2023.

<sup>55</sup> Alexander Rose, *American Rifle: A Biography* (New York, N.Y: Delacorte Press, 2008), 134.

57. Metallic cartridges represented another breakthrough. Soldiers, especially, had used paper cartridges of powder and ball for generations. But such cartridges were easy to break, liable to get wet and ruined, and far too fragile to use in any kind of ammunition-feeding device. Once percussion caps came into common use, however, it took little imagination to envision a single, metal object that contained primer, powder, and ball all in one. By the 1850s, inventors began moving from concept to practical application. Flawed but ingenious designs began to appear that combined attached or internal magazines, jacketed ammunition, and mechanisms for the loading of cartridges and ejection of spent cases.

58. This line of innovation culminated in 1860 with the world's first reliable firearm with a greater than ten-shot capacity. It was developed by Oliver Winchester's New Haven Arms Company.<sup>56</sup> The "Henry," named after Winchester's brilliant gunmaker, Benjamin Tyler Henry, was an ingenious breech-loading, lever-action rifle that could fire sixteen rounds of jacketed ammunition without reloading (one in the chamber and fifteen from an attached, tubular magazine). Refinements to the Henry resulted in an even better gun: the Winchester Model 1866. Throughout the 1860s, none of the viable alternatives fired more than ten rounds. Practically speaking, then, Henrys and Winchesters were the only large-capacity firearms in circulation in the years surrounding the ratification of the Fourteenth Amendment.

59. Company records reveal there were 74,000 Henrys and Winchester 1866s produced between 1861 and 1871.<sup>57</sup> Notwithstanding the Winchester's ubiquity in Hollywood westerns, the vast majority of these weapons were made to order for foreign armies and exported abroad. The Ottoman Empire alone purchased 50,000 Model 1866s, and another 14,706 went to military

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<sup>56</sup> The Spencer Repeating Rifle, also introduced in 1860 and also destined for military and commercial success, was a seven-shot, lever-action rifle.

<sup>57</sup> 11k Henrys from 1861-March, 1863; 3k rifles with King's improvements, but without company name, from April 1866-March 1867; and 60k M1866 between 1866-1871. Tom Hall to D. C. Cronin, New Haven, May 18, 1951; Box 8, folder 16, Winchester Repeating Arms Company, Office files (MS:20), McCracken Research Library, Cody, WY.

purchasers in Europe, Latin America, and Japan during these years.<sup>58</sup> Based on the Winchester's production figures, that would have left only 9,294 high-capacity firearms for domestic consumption in the United States before 1872. Of those, 8,500 were Henrys purchased by or issued to Union soldiers during the Civil War.<sup>59</sup> These figures suggest (a) that high-capacity firearms went almost exclusively to military buyers through the early 1870s, and (b) that very few were in the hands of private persons that might have used them in ways that attracted regulatory attention.

60. The figures also tell us that even a few years after the ratification of the Fourteenth Amendment, high-capacity firearms constituted a tiny percentage of firearms in the United States. How tiny? Some numbers offer perspective. In 1859, on the eve of the Civil War, the U.S. Ordnance Department counted 610,262 shoulder arms in federal arsenals. Combined, the arsenals of individual states likely contained hundreds of thousands more. Domestic producers made 2.5 to 3 million firearms for the Union during the war, while Union purchasing agents imported 1,165,000 European muskets and rifles.<sup>60</sup> The Confederacy imported several hundred-thousand firearms as well. The scale of private gun ownership involves more guesswork, though the U.S. may have had the most heavily armed civilian population in the world after the Civil War. All told, there were certainly more than five million firearms in the U.S. by the early 1870s—probably far more. But even with the implausibly low figure of five million, that would have meant that high-capacity firearms constituted less than 0.002% of all firearms in the United States as late as 1872. Again, I think that the total number of guns in circulation in 1872 was considerably higher than five million, in which case high-capacity firearms would have constituted an even more minuscule percentage of all guns in the U.S.

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<sup>58</sup> Export numbers are drawn from Herbert G. Houze, *Winchester Repeating Arms Company: Its History & Development from 1865 to 1981* (Iola, WI: Krause Publications, 2004), 21, 36–41, 51, 59, 65–66, 71, 73, 75.

<sup>59</sup> For Henrys used in the Civil War, see Pamela Haag, *The Gunning of America: Business and the Making of American Gun Culture* (New York: Basic Books, 2016), 81.

<sup>60</sup> Carl L Davis, *Arming the Union; Small Arms in the Civil War* (Port Washington, N.Y: Kennikat Press, 1973), 39, 64, 106.

### III. The late arrival and rapid regulation of automatics and semi-automatics

#### A. The era of the slow-load high-capacity firearm, 1870-1900

61. While lever-action rifles took time to make inroads into the U.S. consumer market, they became increasingly popular in the last third of the nineteenth century. Winchester continued to dominate the market. Most other firms that tried to compete in lever-action rifles failed on their own, or were bought out or otherwise outmaneuvered by Winchester's ruthless corporate savvy (the gunmaker Marlin being the only major exception).<sup>61</sup> Other rifle makers experimented with alternative designs. For example, Colt's popular Lightning Slide Action Rifle (around 126,000 produced between 1884-1904) had a twelve- or fifteen-round tube magazine and used a pump-action to cycle rounds into the chamber. Another ingenious Winchester competitor retained the lever-action but incorporated a novel, rotating internal magazine that held twenty-eight or thirty-four rounds. Even with the highest capacity of any repeating rifle ever marketed in the U.S., though, the Evans Lever-Action Rifle enjoyed only modest success in its six-year production run (12,000 produced between 1873-1879).<sup>62</sup>

62. In 1898, Florida made it unlawful to "carry or own a Winchester or other repeating rifle or without taking out a license from the county commissioner of the respective counties, before such persons shall be at liberty to carry around with him on his person and in his manual possession such Winchester rifle or other repeating rifle."<sup>63</sup> But that law appears to have been unusual. The new rifles seldom seem to have been singled out for regulation on account of their novel high capacity. Why not?

63. The late nineteenth century was an era of slow-load high-capacity firearms. Winchester lever-action rifles and their high-capacity competitors in the last third of the

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<sup>61</sup> For Winchester's dominance, see Pamela Haag, *The Gunning of America: Business and the Making of American Gun Culture* (New York: Basic Books, 2016).

<sup>62</sup> For the Lightning Slide Action and the Evans, see Flayderman, *Flayderman's Guide to Antique American Firearms and Their Values*, 122-23, 694. "Earliest specimens (extreme rarities with no examples known) held 38 rounds."

<sup>63</sup> 1898 Fla. Laws 71, An Act to Regulate the Carrying of Firearms, chap. 4147, § 1: § 1, in Frassetto, "Firearms and Weapons Legislation," 82.

nineteenth century had fixed magazines. Once the magazine was empty, the shooter had to reload each round, one by one. As with revolvers (which transitioned away from the laborious cap and ball system to faster-loading metallic cartridges in the 1870s), this round-by-round reload process put a ceiling on the damage a single shooter could inflict on a group of people. Notwithstanding the success of lever-action high-capacity firearms, that ceiling hadn't gotten dramatically higher since the 1830s. The magazines of most high-capacity rifles held somewhere between 10-15 rounds. A person armed with a pair of seven-shot revolvers could fire fourteen rounds without reloading. With the exception of the remarkable but expensive and short-lived Evans rifle, then, a shooter from the time with a repeating rifle had roughly the same capabilities as a shooter with two revolvers in his hands. There were trade-offs, of course. The repeating rifle often had somewhat more power and always had more range and accuracy. Pistols were concealable and easier to use in some circumstances. (Neither arm had the power, range, or accuracy of bolt-action, single-shot rifles that most major militaries of the world continued to favor.)

64. In other words, the advent of Winchester repeaters and their competitors didn't provoke fundamentally different social problems than those that had been accelerating in the U.S. since the proliferation of revolvers and pepperboxes earlier in the century. The changes were of degree, rather than kind. State lawmakers continued to regulate firearms in the name of public safety, as they had since the colonial era. At least forty-eight new laws were passed in the United States between 1868-1903 restricting firearm carry, for example (and twenty-one more would be enacted between 1900-1934).<sup>64</sup> But rather than target lever-action rifles, lawmakers usually lumped them together with other kinds of firearms when crafting regulations. Rifles are invoked alongside other kinds of weapons in Montana's 1879 prohibition against dueling, for instance; in North Carolina's 1869 law against hunting on the Sabbath; in Florida's 1881 law criminalizing the sale of weapons to minors and to those with "unsound minds;" and in unlawful

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<sup>64</sup> Frassetto, 24-34.

discharge laws in Texas (1871), Wyoming (1879), New Mexico (1886), and Rhode Island (1892).<sup>65</sup>

65. As slow-load high-capacity firearms, lever-action rifles continue to be popular in the United States today. To my knowledge they are rarely subject to special regulation, notwithstanding their high capacities. Section 11c of Oregon Measure 114, the law at issue in this case, specifically exempts “a tubular ammunition feeding device that is contained in a lever-action firearm” from its regulation of “high-capacity magazines.” Numerous firearms from the late nineteenth century had capacities exceeding ten, but their slow-load quality made them very different from the firearms commonly subject to regulation today.

66. To appreciate how different the era of slow-load high-capacity firearms was from our own times, it is instructive to consider which arms among those commercially available in the last third of the nineteenth century *would* have been subject to regulation under Measure 114. It’s not a long list. Using *Flayderman’s Guide* and excluding guns made in small quantities (fewer than 1000), I can only identify one such firearm: the Colt Lightning Slide Action Rifle.<sup>66</sup>

67. Slow-load high-capacity rifles seldom attracted particular regulation because, in an era when revolvers had already become so common, they did not represent a fundamental change in how a single armed individual could threaten public safety. But automatic and semi-automatic weapons, the world’s first viable fast-load high-capacity firearms, did.

#### **B. The era of fast-load high-capacity firearms**

68. Automatic and semi-automatic firearms are self-loading. (Automatic arms continue to fire as long as the trigger is depressed, while semi-automatic arms require the shooter to squeeze the trigger for each round fired). Lever-action or pump-action rifles use energy transferred from human muscle through an internal mechanism to eject a spent casing and chamber a new round. Likewise single-action revolvers, which require the shooter to pull back

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<sup>65</sup> Frassetto, Montana: 39; North Carolina: 92; Florida: 76; Texas: 98; Wyoming: 99; New Mexico: 12; Rhode Island: 97.

<sup>66</sup> The Evans rifle could arguably have been subject to regulation under 114, even though it was a lever-action arm, given that its large internal magazine isn’t exactly a “tubular” device.

the hammer in order to rotate the chamber and position a new round for firing. (Double-action revolvers transfer all this work to the trigger, which when squeezed both rotates the chamber and releases the hammer.) Rather than human muscle, automatic and semi-automatic firearms enlist some of the energy released by the first round to eject the spent casing and chamber the next round.

69. Automatic and semi-automatic firearms first started coming on the market in the 1890s. In addition to advancements in machine production, materials science, and precision parts, these revolutionary weapons were made possible by three specific innovations. The first was the invention of a reliable mechanism using springs and levers to capture the recoil energy of a fired round in order to chamber the next round. That discovery belonged to Hiram Maxim, creator of the famous Maxim machine gun in 1884. The second was the invention of smokeless powder. When fired, black powder leaves residue behind that fouls barrels. This was a manageable annoyance, in the era before guns could fire several times a second. With the astonishing rates of fire made possible through Maxim's invention, fouling would be so rapid as to quickly render an automatic fire weapon inoperable. Serendipity intervened to solve this particular problem. In the mid-1880s, right when Maxim was making his breakthrough in harnessing recoil energy, researchers in France perfected a chemical propellant (based on nitrocellulose) that was three times as powerful as black powder, gave off very little smoke, and left behind almost no residue in the barrel. Smokeless powder meant that automatic fire would be a practical technology.

70. Third and finally, automatic- and semi-automatic firearms required a method of feeding cartridges into the weapon. Maxim's machine gun (a heavy device usually placed atop a wheeled carriage) used belts of rounds, stored in boxes. To be practical, automatic and semi-automatic handheld weapons needed detachable magazines. They, too, emerged in the 1880s. The first successful firearm with a detachable box magazine was developed by James Paris Lee, to be used with bolt-action rifles. Bolt-action rifles with detachable magazines were quickly

adopted by world militaries (though even as late as 1910, neither the United States Army nor any European army used magazines that exceeded ten rounds as standard service weapons<sup>67</sup>).

71. The first pistol to successfully combine all these elements was the Borchardt C-93, made in Germany in 1893. Three years later it was overshadowed by another German gun, the Mauser C-96. John Browning, arguably the most inventive and important of all U.S. gunmakers, finished his first design for a semi-automatic pistol in 1895. Slow to grasp the huge importance of these new guns, Colt Arms told Browning that he could keep his design because there wouldn't be a domestic market for it. He tinkered some more and sold the design to Belgium's Fabrique Nationale ("FN"). FN produced the gun starting in 1900 and would go on to sell more than 700,000 of them over the next decade.<sup>68</sup> Colt quickly realized its mistake and revived its partnership with Browning, marketing better and better versions of his pistols starting in 1900. These culminated with the M1911. The most copied and influential of all modern handguns, several million M1911s have been sold in the past century, and the gun is still in production today.

72. American firms also helped lead the way in the production of semi-automatic rifles. Winchester and Remington both had models out early in the century. Light, fully automatic guns (so-called "sub-machine guns"), migrated from the battlefield to the U.S. civilian market. The most notorious was the Thompson submachine gun, aka "The Tommy Gun," which entered the U.S. market in the 1920s. It was a select fire weapon, meaning it could be set either to automatic or semi-automatic fire. Tommy Guns had box magazines ranging from twenty to thirty rounds, and drum magazines as large as one hundred rounds. Its high price kept civilian sales low, but this legal firearm became much sought-after by criminals and law enforcement.

73. Detachable magazines enabled shooters of automatic and semi-automatic firearms to reload all at once, rather than round by round. These fast-load firearms empowered individual

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<sup>67</sup> In the ninth edition of his authoritative treatise *The Gun and its Development* (London: Cassell & Co., 1910), W.W. Greener compared the standard service arms of nineteen countries. Only four (Turkey, Switzerland, Great Britain, and Belgium) employed arms with detachable magazines. See table on pp. 736-37.

<sup>68</sup> John Walter, *Hand Gun Story* (Barnsley: Frontline Books, 2008), 220-28.

shooters to inflict far more damage on more people than had been possible with earlier technologies. As they had with the advent of multi-fire pistols in the nineteenth century, lawmakers responded to the new threat to public safety with legislation. Between 1925 and 1933, twenty-eight states passed laws against fully automatic firearms.<sup>69</sup> In 1934, Congress passed the first significant federal firearm law in the nation's history, regulating fully automatic weapons along with several other kinds of guns.

74. Despite the great variety of models produced, prior to the 1930s surprisingly few of the new firearms came with magazines that held more than ten rounds. Hlebinsky's declaration suggests otherwise, but her examples [ECF 72 ¶ 37] tend to be technically true and misleading in implication. She notes that the Mauser C-96 "came in configurations as high as twenty rounds." She seems to be referring to later variant Model 712, which could fire in semi-auto or fully auto, and could accept a 20-round cartridge. This arm was introduced in the early 1930s and Mauser shipped the vast majority of them to China. Moreover, because the Model 712 had an automatic fire mode, if any found their way to the United States they would have been regulated under the National Firearms Act.<sup>70</sup> Hlebinsky writes that some Luger semi-automatic pistols "had the option of thirty-two round snail drum magazines." It is true that some Artillery Model Lugers were issued with snail-drum magazines to German shock troops and non-commissioned-officers, but it isn't as if they were marketed to U.S. consumers.<sup>71</sup> She writes that the Model 1903, Winchester's first semi-automatic rifle made for the public, "was also fixed with a lesser-known Sabo ninety-six round detachable magazine". What she neglects to mention is that this exotic, complex magazine cost twice as much as the firearm to which it was affixed and was made in

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<sup>69</sup> Spitzer, "Gun Law History," 68.

<sup>70</sup> See the profile of the Mauser Model 712 "Schnellfeuer" Machine Pistol on the NRA Museums Website, <https://www.nramuseum.org/guns/the-galleries/wwii,-korea,-vietnam-and-beyond-1940-to-present/case-37-wwii-the-axis,-germany-italy/mauser-model-712-schnellfeuer-machine-pistol.aspx> accessed Feb. 4, 2023.

<sup>71</sup> See the profile of the DMW Model 1914 Artillery Luger snail drum magazine on the NRA Museums Website, <https://www.nramuseum.org/guns/the-galleries/world-war-i-and-firearms-innovation/case-34-world-war-i-the-central-powers/dwm-model-1914-artillery-luger-snail-drum-magazine.aspx>, accessed Feb. 4, 2023.

tiny quantities (an expert in these arms is aware of only four in existence, and writes that “it is easy to see why it is so rare and was essentially a commercial failure”).<sup>72</sup> She tells us that the Winchester 1907 had box magazines that went up to twenty rounds. But according to a profile of this gun in the NRA magazine *The Rifleman*, the 1907’s “standard magazines held five rounds, but ten- and even fifteen-rounders were made for law enforcement and military work.”<sup>73</sup> Hlebinsky writes that Winchester developed a select-fire rifle in 1917 mounted with two, twenty-round magazines [ECF 72 ¶ 37]. That made for a very impressive forty-shot capacity. But the most important fact about this gun is only obliquely addressed in her footnote. Winchester only produced one (1) of these firearms, a prototype made in the (doomed) hope of securing a military contract.<sup>74</sup>

75. Perhaps partly because high-capacity magazines were unusual at this time, lawmakers worried about the implications of semi-automatic weapons for public safety do not seem to have conceived of magazines as something they could productively regulate separately from the guns themselves. And yet many clearly thought that the magazine capacity of these firearms was one of the things that made them so dangerous. So those states that did take action regulated the arms themselves, often addressing magazine capacity in the process.

76. Of the seven states that passed laws restricting semi-automatic weapons during the 1920s and 1930s, five of them incorporated capacity ceilings into the law. Different states set different limits, presumably reflecting the different circumstances and views prevailing among their constituents. For Ohio the limit was eighteen. Michigan put it at sixteen. Rhode Island set the limit at twelve. Virginia’s limit was seven. South Dakota forbade guns “from which more than five shots or bullets may be rapidly, or automatically, or semi-automatically discharged

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<sup>72</sup> See essay accompanying a recent auction of one of these rare weapons, at <https://auctions.morphyauctions.com/LotDetail.aspx?inventoryid=446518>, accessed Feb. 4, 2023.

<sup>73</sup> Dave Campbell, “A Look Back at the Winchester Model 1907 Rifle,” *American Rifleman*, Dec. 19, 2017, at <https://www.americanrifleman.org/content/a-look-back-at-the-winchester-model-1907-rifle/>, accessed Feb. 4, 2023.

<sup>74</sup> See Ian McCollum, “Burton 1917 Light Machine Rifle,” July 4, 2016, at <https://www.forgottenweapons.com/burton-1917-light-machine-rifle/> accessed Feb. 4, 2023.

from a magazine.” Three other states – South Carolina, Louisiana, and Illinois – crafted laws that leave a slight ambiguity as to whether they only applied to automatic firearms. But all three chose the relatively low figure of eight rounds for their ceiling, something fully automatic weapons could spit out in a single second. That strongly suggests that they, too, had decided to respond to the novel public safety implications of semi-automatic firearms by regulating them.<sup>75</sup>

77. In so doing, these lawmakers acted consistently with American tradition and practice dating back to the early colonial era.

I hereby declare that the above statement is true to the best of my knowledge and belief, and that I understand it is made for use as evidence in court and is subject to penalty for perjury.

Dated this 6th day of February, 2023.

*s/ Brian DeLay*  
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Brian DeLay

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<sup>75</sup> Spitzer, “Gun Law History,” 68–71.